



## SEQUENCE LISTING

<110> SHEN, BEN  
LIU, WEN  
CHRISTENSON, STEVEN D.  
STANDAGE, SCOTT

<120> GENE CLUSTER FOR PRODUCTION OF THE ENEDIYNE ANTITUMOR ANTIBIOTIC  
C-1027

<130> 407T-896010US

<140> US 09/478,188

<141> 2000-01-06

<150> US 60/115,434

<151> 1999-01-05

<160> 2

<170> PatentIn version 3.2

<210> 1

<211> 42000

<212> DNA

<213> Artificial

<220>

<223> cDNA

E' <220>

<221> CDS

<222> (11)..(658)

RECEIVED

FEB 28 2003

TECH CENTER 1600/2900

<400> 1

---

gtcgcactcta gag gat ccc ggg tgc gga gta ggg gtt acg gac gaa gga 49  
Glu Asp Pro Gly Cys Gly Val Gly Val Thr Asp Glu Gly  
1 5 10

ggg gtg ccc ggc gac gcc tgc ggc gaa ggg cgg ttc ctt gag ttc gag 97  
Gly Val Pro Gly Asp Ala Cys Gly Glu Gly Arg Phe Leu Glu Phe Glu  
15 20 25

gcc ggt ggc gag gac gac gtg gtc cgc gtc gag gat ctg cgt gtc ggg 145  
Ala Gly Gly Glu Asp Asp Val Val Arg Val Glu Asp Leu Arg Val Gly  
30 35 40 45

gag cgg ccc agg gcg cag ccc ctc ggt cag gta cgg ggt gag gcc cct 193  
Glu Arg Pro Arg Ala Gln Pro Leu Gly Gln Val Arg Gly Glu Ala Pro  
50 55 60

gac ggt cac ctc gaa gca gcg gtc gtg gga ccg ggc gtc gag cgc ctc 241  
Asp Gly His Leu Glu Ala Ala Val Val Gly Pro Gly Val Glu Arg Leu  
65 70 75

ccc gtc cgc ttc cac aag gac gac gcc ggg aca gga ctc ccg tgc ggc 289

Pro	Val	Arg	Phe	His	Lys	Asp	Asp	Ala	Gly	Thr	Gly	Leu	Pro	Cys	Gly		
	80						85					90					
ctc	gac	cag	tcg	ggc	gtc	gag	gta	gtc	ctg	gaa	gat	gcg	gcg	ggg	ggc	337	
Leu	Asp	Gln	Ser	Gly	Val	Glu	Val	Val	Leu	Glu	Asp	Ala	Ala	Gly	Gly		
	95					100				105							
ggg	gcc	ctg	ttc	ggt	gaa	ctt	cca	cga	agc	cca	gcg	ccg	ggg	cca	gtc	385	
Gly	Ala	Leu	Phe	Gly	Glu	Leu	Pro	Arg	Ser	Pro	Ala	Pro	Gly	Pro	Val		
110					115					120					125		
gcg	ccg	gtc	ggc	ctc	ctg	ggt	ggc	cca	ggt	gat	gaa	gtc	gag	cac	gtc	433	
Ala	Pro	Val	Gly	Leu	Leu	Val	Gly	Pro	Val	Asp	Glu	Val	Glu	His	Val		
				130					135					140			
ctc	gcg	gaa	cac	cga	cat	cct	gcc	ggc	ctg	gat	att	gaa	gac	gtg	gtc	481	
Leu	Ala	Glu	His	Arg	His	Pro	Ala	Gly	Leu	Asp	Ile	Glu	Asp	Val	Val		
			145					150					155				
cca	ggg	ggt	gcc	gtc	acg	gtg	ata	ggc	gac	gcc	ggc	cga	gcg	gta	ggc	529	
Pro	Gly	Val	Ala	Val	Thr	Val	Ile	Gly	Asp	Ala	Gly	Arg	Ala	Val	Gly		
	160						165					170					
ggc	gcg	ccg	ctc	cag	gag	gac	gac	ttc	cag	cgg	tct	tct	cgc	gaa	atg	577	
Gly	Ala	Pro	Leu	Gln	Glu	Asp	Phe	Gln	Arg	Ser	Ser	Arg	Glu	Met			
	175					180				185							
aag	cag	gcg	tat	cgc	ggt	cgc	cgt	gcc	tgc	cag	gcc	cgc	ccc	tac	gac	625	
Lys	Gln	Ala	Tyr	Arg	Gly	Arg	Arg	Ala	Cys	Gln	Ala	Arg	Pro	Tyr	Asp		
190					195				200					205			
cag	cac	cct	ggg	gcg	cgc	acc	cgt	cat	gcc	cat	gaagcctccc	ccgctgactc				678	
Gln	His	Pro	Gly	Ala	Arg	Thr	Arg	His	Ala	His							
				210				215									
agggcgggcg	gtcgcgcgct	cccgtcggtg	tcctcgctga	ctggaagttc	cctgacctgg											738	
cgtaactcc	actgatccgt	aaggggatcg	cgggagtgga	tacgggtcag	gtcgtgcacg											798	
atcgtggcac	cagacagatc	accacgtcga	taggactcg	tgagccgcgc	ccggggctcg											858	
acggggcggg	gcaccggcag	gggcggccgc	gtgatcagcc	ggagcctgtc	cgggggcggtg											918	
cgtgcggggc	gtcagctgtc	gatgtcggga	acgccaggga	cgtcgatctc	ggtgcggggc											978	
tagtggttga	agtagttggt	gtagaggttc	acggccacgt	ggacgaagac	ctcggcgagc											1038	
tcgggtgtccg	tccatccctg	tgccacggcc	gcgttccacg	aggcgtcaga	cgctcgccc											1098	
acttcgcggg	cgatctccct	ggccacctgg	accagtgttt	cgagcttcac	gtcgtcgccg											1158	
ggcgctcccc	ggcgaatcgc	cacggtctcc	tccagcgtga	aacccgcgac	cttcgcccgc											1218	
accgtgtgcg	ccgcctggca	gtacgcgcac	gcgtcgaccg	cgccacggc	gagggcgatc											1278	
gcctcgcggtg	tcggggcgtc	gaacgttcca	tgttcggcga	cggctccggt	gatcgcgggc											1338	

E  
Cont

taggtttcca	ggaccacggg	ggaatgggcc	attccccgt	ggatgttgag	cactcgcccc	1398
aaccgcttct	ccagtcggcg	caggatgtct	ccgccggctg	cgggtgcggt	gtcgatgggtg	1458
tggacgggaa	tccgcggcat	gggaatgcct	ctcctcgtag	tgatgggagt	tcctcgtecc	1518
tccagtctgc	ccaagcacct	cccccggtga	gctgtccccg	ccgccctccg	gccccctcta	1578
ggcaggtcgc	ccggtggtgc	ggccccagga	cgtcacctcg	ccgcaccacc	gggagccccg	1638
aggggcgagg	tcagaggccg	agcacctcct	cggccagggc	ggtgccccga	acacgggcct	1698
cgatcttggc	gaaggccagg	tcgcgtgtgg	tggagggtgc	gtcggcggaac	ggggagaagc	1758
cgcagtcgtc	gcaggttccc	agttgctcga	cggggatgta	gcgggcggcg	agcaggatgc	1818
ggtcgcgtac	ctgctcgggg	gtctcgacca	ctgggtcgat	cgggtcggtc	accccagga	1878
agacgcgggc	ggcagggggc	aggtggtcac	ggacgatgct	caggacccgc	tcgggggtccg	1938
cttcgccggc	cagttcgaga	tagaagttgc	ccgccttgag	ctggaagagc	ttgggcagca	1998
gttcggcgta	gtcgatgtcg	aggctgtgcg	tggagtccctg	gtcgccgccg	gggcagggtgt	2058
gtacgccgat	gcgggcgggtt	tcctcggcgc	tgaagcgccc	caggacttcg	ttgttgaggg	2118
cgatgaagtc	gtcaggagacg	ccgccgctgg	ggtcgagctt	gagggacagc	cgccccctcg	2178
tgaagtcgag	ctggaccacg	tgtgcccccg	cgtccaggca	gcctcggatg	tcggcttcgg	2238
cctcgtcggc	gaggtcgcgc	aggaactgct	cgcgggggta	gccctcgatg	ggagtggcgg	2298
ggtagaggag	gctgagggcg	gaggggtgcga	tgaccgcctg	cttcaggggg	cgggtccgtga	2358
gctgccgtgc	ggcgcgcaga	taggtttcgg	ccgcacactg	gtagcggaag	ggccccctggg	2418
tgatgctggg	gagctgccgg	gtgtgcccgt	ctgcgaaggg	gatgacagcg	ccgtcggggc	2478
agaggggtgc	gaggccgggtc	acggggtagg	tggcgaagct	cggcttggac	tgttcacctg	2538
ccacgaggac	ggggctgccg	actcgttcca	gtcgtgtcag	ggtgtccgcg	acggcctggt	2598
cctgctgttt	ggccagggtcc	gtggcggtcca	gggttccctg	ggcatgcgcg	gcaagggcgt	2658
gcaggagtgt	cgcgagcgcg	ggaaggctgc	cgatcggttc	agtggcgatg	gtcatggccg	2718
aagagtaggg	aagaggctgg	gtttcgaacc	accgcaaagc	tttgattgcc	gctttttcag	2778
gggaagtga	tgcgaagtcg	ccgagcggcg	gaacgtgctg	atgtatgggg	ggcgggagga	2838
gcctgcgggg	ttctaggagc	cggtcgcggc	cacggtggag	gaggtgcccc	gctgggagcg	2898
gggggtcttt	tcgccgacgc	ggttgggctc	gatggtgcgg	gggtcgacgg	cctctccggg	2958
ggcaccttgc	cggtagacgc	cttcggggtc	ggagtccccg	tcatggggga	gcaggaagaa	3018
gacccggcgc	cggtacagac	cgctgtccgg	gtccgcttcg	gcgtcggccc	cgagttcgat	3078

E1  
cont

gtagccgatac atgcggccgt cgcgggcgta gcgcggcttg ttcttgcgcc ggggggtctt	3138
gtccagggcc tggcggacgt agtcgagtc ctcgggatct tcgagccaca cgaccttcgc	3198
ctcgtgaacg agatcgctgt cggtcagtag cgagctcatg gcggcgacct ctcttcgtc	3258
ggcgtgcacc ggggtgggaa gcggtgcctg cgtgatgtgt gttcgtctgc ggcggtgggc	3318
cgcagtgggtg cggaccgccc gtggtgccgg ttctcggcca aagcacgggc aggtacgtcc	3378
tggggcactc acatcgtaga tgggggtccgc ttccgcaggg cagtgcctcc ggtcggagga	3438
cgttcattcg tcggctgcca gagcgagggt ggggtagaac ttccggccgt tggatttgat	3498
catgtcggca ggtgaggcga ggcccacttc ctggcggacc cgggtggcga aggcacgggc	3558
ggtccccggg cggtatgcctt cactgtgtgc gcaccagggt ctgtaggacg ttagagaaag	3618
gccctgttcg acgcgtagct cgctgttctc ggggtcgtgg aggcagcact cggcgaggaa	3678
gcggccgatg tggctcctcg tgttcgcgta tgcgtggtg gcgatgcgga cccggtcggg	3738
gccggcgagt gtgtcgcggg tggcgaggta gcggcgggcc ccttcggtga gccagtgcag	3798
gatccccggg ccctcgtcct ggacgagttc gacagccagg ttgtcgatct tgcgttcgtc	3858
ggggacgatac cgttcgaagg gcaggaggcg gatgcggcgc cagaaggcga agccgccggt	3918
ggagacctcg gggcgggtgt tgcacagcag ccacagcttg tgcgtgggtg tgaaggagaa	3978
atagtcctgc cgcattgcggc gggccttgat cttgtcaccg ccggtcagca ggcggacgcg	4038
cgctcgtcg aagcgggtgt tgggcttgag ctgcgtgcac acgatgaggc ggcggccgtg	4098
gagttcgtg agctcgggtg agtggttcgga gtatgcgcca cgggtccatga ggaaacccgg	4158
<hr/>	
cggggctgcg tcggcgtagt cgcggagaat ctggatcatc acgtcgagga gaacggattt	4218
gccgttcttt ccctggccgt ggagaaaggg cagcacctgc gcccgcagc caccggtgat	4278
ggagtagccg agaaggaggt ggaggaagtc gatcatctcc cgccttcgg cgtcactgcc	4338
gaaggtgtct tcgaggaaac ggtgccagcg ggggggtggg atgtcctggg gggaggcgct	4398
ggtggcgcgg gagtggaaat cccgggtggg gtcgggcttg cgcatacggc cgttcggag	4458
gtcgaccact ccgtcagggg tgcacagggc gtaggggtct ccgtcgaggg tgtcgggac	4518
gagggagagg tcgggagagg cctttgcctg ggtgaggagc gccttcatac cggtcgtcga	4578
caggggtcgg cgtttgtggt ggtgcagttc ccggtcgtg aacagccccg ggggatcgct	4638
gccgggcatc tcctccgcca tctctccggc agcccacagg gcagctttct cgcctccggc	4698
ccgcttcac cggtagccgt cccaggagta ccagcccagg ccctccacgt gccggaactg	4758

E  
Cont

gtcacggtag agacggacga agagcttggc gttgccgcgg tcggtcaggc tggcgggaat	4818
ctcgcccgcc tcccaggcgg tcgcggcgac gggggcctcg ggagcggcct ggacagggag	4878
gagcggcgct ggggcccggg tggtttcgag ggccagcatc tgctgagcgg cggcagttgc	4938
gtcaaagcga gggccctcgg cgctgctgct catggacgtc cttcgagatg gagcggtcgg	4998
gcggtccccg ctgcgggaac ggcatgaatg atcttcccg tgccggacaga gtgccagggg	5058
cagcgcattg gcggggggac aacggcccgt ttcggacgag ggccggccga cggggggaag	5118
caggggcccg caaccgggtg gcggggcgcc gtgagcgagg gcacgagcgg cccggtacgg	5178
ggggaagggc tcgtctctcc gtggggcgcc acgttgtggt cctcgtccgt cagcttgctg	5238
ctggcttcag cctcctgacc cccaataagg cgaaagctgc tggtaagca tctttcgtga	5298
cactcggcga gggactgaag ggactgtctt tcggaatgag ttaggggggt tgcgggtgg	5358
ggaccgcgcc tcgactcccc ggcggacggg atctgttcgg tcggtccctt gggccctcc	5418
ccggatcgcg gcagggaccc aagggggcgg tcgggcgggc ggtcgggtgag gggccccggt	5478
ggagggactg aggggtctgta tggagcgata agaggggtctg aaggggcgga gagagtctcg	5538
gtccctgctg tgagtcctcg gtcattaccg caggtcagag gggttttgag gggtgaaaaa	5598
gggactgaag ggactcaact tccccattat gagctgagta gaagaaagca gtatgacgat	5658
atcggcgccct acatacgcg gcgtacatag tgagcttata atgcggaagt tgagtcctct	5718
cagtcctctt tcgtgggggtc gtatcccttc tgaactgcgt gaccgtcgcc gctccgcgca	5778
gggaccgaag agggaccaag tccctgcgcg gggcgggcga cggtaatcgt gcagtcccc	5838
ctccccggtt tcccacagcg agtcgtcgct cccctgtgag gccggagagg gtcctagaac	5898
ccctcagggg ccgttctgtg gccctctggg cctcctcctg gccatttacc ccatgggggc	5958
gcttgggggc gtcaggaggg cttgtgaggg ctctgccggg aagtggcgga ttgcgcattg	6018
caggagatgc cccgacagcg gccgggaatc gacgatgtcc cccgaccct atccagcgtc	6078
cgctgacct caggaggcag accttgagg ctccagaagc gaagaacggc cgggtccccg	6138
agcagccgca ggaagagcgg atcgtcctgg acgtatggct ggcgaaactac ccgttcccc	6198
cctatgacgg gcgtgacttc ctcgctccgc tgcgcgagcg ggcggcgagg ttcgagcgcg	6258
cccacccccg ataccgggtc gacatcaacg gccacgactt ctggaccatc cccgagaagg	6318
tggcgcgcg caccgcggag ggcaggcctc cgcacatagc gggctactac gccaccgaca	6378
gccagttggc gcgggacgcg cgcaggcccc acgggaagcc ggtcttcacc tcggtggagg	6438

E!  
Cont

ccgcgttggc	cgcccgagc	gagatactgg	gacacccggt	ggtggtggag	gacctcgacc	6498
ccgtggtgcg	cgactcctac	tcgttcgggg	gcgagttggt	gtcgtctgcc	ctcacgggtca	6558
ccaccatgct	ctgctacgcc	aactcctccc	tctcgcgcg	cgccggtggt	ccggagttgc	6618
cccgtacctg	ggatgaggtc	gaagcagcct	gccaggcggt	ggccagcgct	gacggggggc	6678
ccggtcacgg	aatcacctgg	gccaacgacg	gctgggtttt	ccagcaggcc	gtcgcccttc	6738
agaacggggg	gctgaccgat	caggacaacg	gccgctccgg	ctccgccacg	acggtggacg	6798
tcacatcgga	cgagatgctg	gactgggtcc	gctggtggac	gcacctccat	gagcgcggcc	6858
attacctcta	cacgggcggg	ccctcggact	ggggcggggc	gttcgaggct	ttcgtccagc	6918
agaaggctcg	attcaccttc	gactcgtcca	aggccgcccc	ggaactcatc	caggccgggtg	6978
cacaggccgg	tttcgaggtc	gcggtgttcc	cgttgccacg	gaacgcgaag	gccccggtag	7038
cgggccagcc	cgtctcggga	gactccctgt	ggctggccgc	gggactcgac	gagaccacgc	7098
aggacgggct	gctcgtcttc	accagttacc	tgatcagccc	ggccaacgcc	gcggactggc	7158
accgcaccaa	cggtttcgta	ccggtgaccg	gcgcggccgg	ggaactgctg	gaagcgacag	7218
gctggttcga	ccgccggccg	cagcaacggg	tggccgggga	gcagttgaag	gcgtccgacc	7278
ggtcacccgg	ggcgtcggc	gcgtgctcg	gcgacttcgc	ggcgtcaac	gaggtcatca	7338
ccgcagcgat	ggacgatgtc	ctgcgcagtg	gagcggaccc	cgcaaggcc	ttcgccgaag	7398
ccggcgtggc	cgccagcaa	ctgctcgatg	cctacaacgc	ccggaaccgc	tccggatccg	7458
ggacccccct	cgccgtctga	gatccggtac	cggggcacag	gggcgcgcgc	gcccgttttc	7518
<del>ccggcggggc</del>	<del>aetggcggg</del>	<del>ggacatgctc</del>	<del>tcccgcctcc</del>	<del>ggcaggacgt</del>	<del>agggtcaacc</del>	<del>7578</del>
cgctgcgcc	ttcaggtggc	ggcgcagata	ctcaccggct	agggaggaat	ccgcggcgag	7638
caggctcctc	ggtgtgccgg	tgaagacgat	ctcgcgcgcc	tccgtcccc	cgtcgggacc	7698
caggctgatg	atccagtcgg	cctgctgcac	cacatcgagg	ttgtgctcga	tgaccacgac	7758
ggtgttcccg	gcctcgacga	gcccgtccag	gagcttcagc	aggggtgtcaa	cgcccgacat	7818
gtgcagcccc	gtggtgggct	cgtccaggac	atagaccgtg	cccgtgcggg	gcagctggtc	7878
ggcaagtttg	atccgctgca	gttcaccgcc	ggagaggctg	gaaagcggct	ggccaggct	7938
gaggtaccca	agaccgacgt	cgacgagagc	gcgcagtttc	ggcagcaggg	ccttctcggt	7998
gaagaactcg	acggcctcgt	cggcgggcag	ctccaggacg	tccgcgatcg	acttcccgcg	8058
aagctggtgc	tccaggacct	cggtcttgaa	gcggcgcccc	tcacagacac	cgcagtgcgt	8118

ggtcaccgga	tccatgaagg	ccagctcggt	gatgatgacc	ccgcggccct	ggcactcctc	8178
gcacgacccc	ttggagttga	agctgaacag	cgaggcggtc	gcgccgggtct	ccttcgcgaa	8238
cagcttgccg	agcgggtcca	tcaggccgag	gtaggagacc	ggtgtggagc	gcgacgaggc	8298
ggcgatcgcg	gactggtcga	caaagaccgc	gtcgggggtgc	gcctccatga	atgccccgga	8358
gatcagggtg	ctcttgccgg	aaccgcgccac	cccggtcacc	gcggtcagca	caccgggtggg	8418
cacggccacg	gagacctgct	tcagggttgtg	gagatccgcg	ttctccacgg	tcagctcccc	8478
cgtggggcggg	cggacctcct	ccttcacgcg	ggccccccgc	cgcagagcct	ccccgggtccg	8538
ggtcttcgcc	ttccgcagct	tcgcgaagga	cccctcgaac	acgatctcgc	ccccgtgcac	8598
tcccgcctcg	ggaccgacat	cgacgatgtg	gtcggcgatc	tcgatcacat	cgggggtcgtg	8658
ctcgacgacc	agcacggtgt	tccccttgtc	gcgcagcgcg	cgcagcaggt	cgttgagccg	8718
ccccacgtcg	cgcgggtgca	ggccgatgct	gggctcgtcg	aagatgtacg	tgagccccggc	8778
cagaccactg	ccgaggtggc	gcaccatctt	cagccgctgc	ccctcgcccc	ccgagaggtc	8838
ggccgtgggc	ctgtccaggg	tcaggtagcc	gagcccgatg	gacacgatcc	gctccagggc	8898
cgtgcgcgcg	gcttttcgca	gaggggcagc	ggccggctcc	gtgacgccgg	cgagcacctc	8958
cgtgaggtcg	cggacctcca	tgctcgagta	gtcggcgatg	ttcttgccgt	cgatccggac	9018
gtcgagcgcg	gcggcggtga	gccgcgcgcc	ccggcaggag	ggacagactc	cgtcgggtgac	9078
gaaacgttcg	atgacctcgc	gcttgccgtc	gtcagcgcg	ctgaggctgc	gcttgagggtt	9138
gagccgctcg	aaccggtcgg	ccaacccctc	gtagtctcgc	tggaactcgg	tgctcttggt	9198
cttcagcgtc	accttccccg	cggtgccgcg	cagcagcggtg	tccagctcct	cggcgctgta	9258

ctcggcgatc	ggcttgggccg	gatccagacg	gccggacttc	gccagatct	gccagtccgg	9318
gctacccacc	ttgtactcgg	ggaaaaggac	cgccccgtcg	tccagggact	tcgagcggtc	9378
cagcatcttg	tccaggtcga	gggcgatgct	ctggccgaga	ccgtcgcagt	ccgggcacat	9438
gccctggggg	tcgttgaacg	agaacgcgga	gacgcgcgagc	gaggacggcc	cgtcgtcctt	9498
cgtcgtgccg	aaccgtgcga	acaggggccc	gatcatcggc	tgtacgtccg	tcattgggtccc	9558
caccgtggac	cgggcgttgc	ccccacggg	cttctgggtcg	acgatcaccg	gggtgggtgag	9618
gttctcgatc	gcctcggcct	gaggacgttc	gtacttcgga	agctgggttc	ggatgtacca	9678
gctgaagggtg	gagttcagct	gtcgtcgggc	ctccacggcc	accgtgtcga	agacgatcga	9738
cgacttgccc	gaacccgaga	cccccgtaa	gaccgtgatc	tggttgccggg	gaatcgtcag	9798
ggagacatct	ttgaggttgt	ggatccgcgc	gccgcgatg	cggatgccgt	ctcccggggc	9858

E1  
cont

ggatgttttt	cccgcgccgg	cggtgggggc	ggtgacgctc	acagagtttt	cctcctgggt	9918
tccgtacatg	atttaccgtg	tcagccgggc	aaaccggcgg	aacggtaacc	acctagcttg	9978
tactcaggag	gtgtccgggg	tcttctcctc	ccgtgctgac	ttggggggccg	gcccgcggga	10038
cagggccggc	tccgtgttcc	accccgccag	ccgatcccc	cgtccgtct	cgctctctc	10098
gagaacgatc	cggtgctcg	cccagcgcag	gatcggcggc	gccgtcaccg	aggtgatgag	10158
ggcgaccagc	acgatgatcg	tgaaggtcac	ggtgtccagt	acgccgatac	gcaggccgac	10218
cagggcgatc	accacctcga	tcattccacg	cgagttcacc	cccgtccga	gcgccagccc	10278
ctcgtagcgg	ctcatcccg	cactacgggc	ggcgacgtac	gcaccggcga	acttgccgaa	10338
agtggccacc	aacagcacc	cgaggcccg	gagcagcacc	gacggctccg	cgagtgcgg	10398
caggtccatg	cgaagcccca	cactgcccag	gaacaccgg	gcgaacacgg	ccatgaccag	10458
cgtgcgcagc	ggggcgagcc	gtaccggggc	gatgtgcctc	agcagggctg	caccggccac	10518
gaacgccccg	aacaacgcct	ccatcccg	cgccgcgggc	agcgccccgt	acaggacgac	10578
cacggccacg	ccgacggtga	cgcccgatac	ggggacccgg	ctgtcaccg	tacgggacag	10638
ccgcctgccg	atcgggccgc	ccaccgcaca	cgccgcggcg	acgaagacgg	tcgtccaggc	10698
catcggtggc	aggaccacgg	gcccccg	cgccccactc	gccagcgccg	tcaccagagc	10758
gagcagcagc	cagcccaccg	cgctcgtcga	caccgctgcc	gcgatgagca	gctggccgac	10818
gttgcggtgc	gtcagattca	ggtcggcgag	cgtcttggcg	atcaccggga	gggccgtgac	10878
acacatcgcg	accccgagga	acagcgcgaa	gacgccccgc	tctccggagt	ccgcgagcag	10938
<hr/>						
cgaggcgggc	accaggtagc	cggtggcgat	gcccagcccc	agaggaatca	gaagaccgc	10998
caggctgacc	cgggcgggca	gacccccgcg	cttgccgagg	atccgggggt	cgaactgggc	11058
acctgcgatg	gccaccagca	gaaggacgcc	gaactggcag	aacgcgtcga	gcaggtgcgc	11118
ctgcgagatg	tcctcgggaa	acagcctgcc	ggaaagtccc	ggcgagatct	gccccagcag	11178
ggtcgggccc	agcagtaccc	ccgcgggtcag	ctccccacc	agcgggcgga	gaccgatccg	11238
ggtccccagc	cgtcccagac	cgtaggcaca	ggcgagcagg	aggccgacct	ggagcaggaa	11298
gaccgtcagc	ggctccccgc	ccagcggcga	cgtgggtgcg	agcacagcca	cgtcaggacc	11358
gcgcaccggg	aaccagccc	agcccgctcg	tcgacgcggc	cagaccccc	tgctcaccg	11418
gtcgtcggc	ccccgcctca	tccccagaa	gagcccgctg	ctgcagtgcg	gcgctctgct	11478
ccatgaggcg	gcccaccacc	tttcccgga	cggcgcgctg	cggcccgtcg	gcgtcgccc	11538

E1  
Cont



cagcgggtgtg	cgatcatgccg	gccatctcgt	cggacgcctc	ggagaaccgc	tgcttgcccc	11598
gggccgtgtc	ggcgaactcg	tcggaggaga	ccccgccgat	cagttcgacg	aaggactgca	11658
ggtcggagtc	cgcggtgttg	gagatcttcc	gggcctgcc	gaaataggag	tcctccgaat	11718
ggtgcatgtc	gtagaagccg	accaggaact	cgtagaagcg	gccgtactcc	agccggtagc	11778
gggcctcgaa	ctcctcgaa	gcgctggtct	cgtcgaccga	cccgtccagg	caggagttga	11838
gcgagcgcgc	tgccagcagt	ccgctgtagg	tggcgaggtg	caccccgag	gagaacaccg	11898
ggtcgacgaa	gcacgcggca	tccccgacca	gggccatgcc	cggcgcccag	aacttcgtgt	11958
tgctgtacga	ccagtccttg	cggaccggga	gctcgccgta	ggggccctcg	gtcaccgggg	12018
tggcctcgga	gagcttctcc	gcgatcagcg	ggcaggccgc	gatgaacgac	tccatcgctt	12078
tctcggggtc	gccctgcacc	aggctcgccg	agtcccggtt	caccactgcg	ccgacactcg	12138
tcagctcggg	agacaggggt	atgtaccaga	accaccctg	ctcgaagggt	cagggtgaaga	12198
tgttcccggga	gttcggcttc	ggaagccgct	tggcgccggt	gaagtagccg	aacagggcca	12258
ggttgccgaa	gaagggcgag	tactcgcgct	tggcgcccga	cttcttgtag	agcccaccgg	12318
tgttgccgga	ggcgctccag	acgaaacggg	agcccacctc	gtgctcgcg	ccctcggagt	12378
cccggtagcg	cacgccccgc	acccggccgt	cctcggcctt	gagcacgtcg	aggacatcg	12438
tgttctcccg	cacctcgaca	ccgtgcctgc	gagcgttgtc	gagcaggatc	tggtcgaact	12498
tcatgcgctc	gacctggtac	gcgtaccccg	tcgcccccg	catccggcg	gagacggcga	12558
agtcgaacgt	ccacggttcg	gggttggcac	cccacttgaa	cgcccccg	tgcttgatcg	12618
<hr/>						
tgaaggctgc	cttcttcagc	tcgtcggaga	caccgaggag	gtgtgcgatg	ccgtggacgg	12678
tggaggggag	gagcgactca	ccgatctggt	agcgcgggaa	ggtctccttc	tccagctgga	12738
gtacgcgatg	gccccgcttg	cggaccagcg	tggagacggg	cgagcccgcc	ggacctccgc	12798
cgaccacgat	gacgtcgtag	tgcgctgaca	cgtccacgga	ctctccttct	cgcacatcgg	12858
gcgtctcata	ttcccaggaa	tcctctggcc	cgcccagggt	ctgcgcgcat	ttcgggtattg	12918
cgaagtcgtg	ggcattctgc	gagaagcatg	aaccgcgtgg	cccgggtctac	agtggcggtg	12978
aatttcagtg	attgcgctga	agggcgccac	acgatgaagg	cacttgtagt	gtcgggtggt	13038
tcggggaccc	gcctgcgccc	gatcagttac	gccatgccga	agcagctcgt	tccgatcgcc	13098
gggaagccag	tccttgaata	tgttctggat	aatatccgga	acctcgatat	caaagagggtc	13158
gccattgtcg	tcgggtgactg	ggctcaggaa	attattgagg	caatgggtga	cggcagccgt	13218

E1  
Cont

ttcgggtctgc	gcctcaccta	catacgccag	gagcaacctc	tgggcatcgc	gcactgcgtg	13278
aaactggccc	gagacttctt	cgacgaggac	gacttcgtcc	tctacctagg	cgacatcatg	13338
ctggacggag	acctgtccgc	gcaggcgggg	cacttctctc	acacccgccc	cgccgcgcgg	13398
atcgtcgtgc	gccaggtgcc	cgacccccgg	gccttcgggg	tgatcgagct	ggacggcgaa	13458
gggctgtgtg	tgcgcttggg	cgagaaaccc	cgtgaaccgc	gcagcgacct	cgcggcggtc	13518
ggcgtgtact	tcttcaccgc	ggacgtgcac	cgcgccgtcg	acgcgattag	cccagccga	13578
cggggcgagc	tggaaatcac	cgacgccatc	cagtggctgc	tggagcaggg	cctgccggtc	13638
gaggccggcc	gctacacgga	ctactggaag	gacaccggcc	gggtcgagga	cgctcgtggag	13698
tgcaaccggc	ggatgctcgg	ccgtctggcg	ctccaggtgt	cgggcgaggt	ggacccgag	13758
agcgaactgg	tgggtgcggg	ggtcgtcgag	gagggcgccc	gggtgacgcg	ttcgcgggtc	13818
gtgggaccag	cggtgatcgg	cgcgggcacg	gtcgtcgagg	acagccagat	cggaccgtac	13878
gcctccatcg	gccggcgctg	caccgtgcgg	gcgtcccggc	tctccgactc	catcgctcct	13938
gacgacgcct	cgatcctcgc	ggtgagcgga	ctgcacggct	cgctgatcgg	aaggggcgcg	13998
cggatcgcg	ccggggcccc	gggagaggcc	cggcaccggc	tggtcgtcgg	cgaccacgtg	14058
cagatcgaga	tcgcggcctg	acgcacccac	cggagcaccg	gggggaggct	cggcaggggc	14118
gtcaggccgt	aagaagggtc	gccggggcgg	gacggaccgc	ccccggcagc	ccacaggtcc	14178
ccggtccgcg	gatatggggg	actcgagggt	cgatcagccg	aagggtcagag	ccacgtggcc	14238
gaggtcgagc	ccggagttgc	cggcgccgag	gttacaggcg	gccgtggcgc	agtcgacgct	14298
gccgaccggc	gtgccttcgg	gcgtggagcc	cgtgtacgac	ttgcgcacga	cgaagctgaa	14358
<hr/>						
cgacgccgct	ccggacgcgt	ccgtggtgaa	ggacgtcgcg	gtcgccgggt	tgcacgcgtc	14418
ctggccaccg	accggagcgc	actgggcgat	gtagtaggtc	tcgccggcgg	cggcaccgct	14478
gaccgacacc	gacacgtctt	gtccgtcact	cagacccgag	gcgggactga	cggagaaggc	14538
gggcgcggcg	aaggcgacgg	actgtgcggc	ggcgccagg	ccgatggatg	cgacggccac	14598
gacgccgaac	ctggaagcac	ggcgggacat	gtgacgtaac	gacatgcgta	ggctccgatt	14658
cgaggagggg	gttgatcact	ccatgaaagg	atcacctcgc	cggacggccg	cctgcactct	14718
cctctgtgct	ctcgtggatt	tccggcacgg	cactcccgtc	gacggccgcc	cgcagaatgc	14778
ggcagacccc	ccgcacctcc	tccggcccca	ccgccgtacc	ggtgggcagc	gacagcacco	14838
gctcggtag	cgccctccacc	ttcgggagcg	gatcgggcgc	gtggcgcgcg	aggtcggacc	14898
ggtagggctc	gcagctgtgg	cagccggggc	tgaagtaggc	gcgggcccagg	acgttgtgcc	14958

E1  
Cont

gttggagcac	cgcttgaggt	tcgtcgcggt	gcagcccggc	gcggacggcg	tccacctcga	15018
tgacgacgta	ctggcagttc	gacagctcgt	tcggatcctg	cgggcggacc	cggacgccgg	15078
gcagtcctgc	gaggtactgc	tcgtacagac	ggtagttgcg	ccggttgatc	gcggtgaagt	15138
gatcggcgga	ctccagggag	gtgaggccca	tggccgcgct	gatctcgtgc	atccgcgcga	15198
ccgttccgct	cccggtgatc	tcatgcgcgg	cgttgagccc	ctggtggcgc	atggcccgga	15258
gccggtcggc	cagggcgctc	tcgtcgggtga	cgatcgcccc	gccctcgaag	ctgttcacga	15318
acttcgtcgc	ctggaagctg	aagatctccg	ccgtgccgaa	gccgccgatc	ggcttcgacc	15378
ggtaggtgca	gccgaaggcg	tgggcggcat	cgaagagcag	gtgcagcccg	tgctcggcgg	15438
ccagcttggt	cagctcgtcg	atccggggccg	gtctgccgaa	gacgtgcacg	tccaggatgg	15498
cgcgggtacg	cgggccgatg	agccgctcca	cgtgtgccac	gtccgcgggt	ccggtctcct	15558
cgtccagttc	gcagaagaca	ggcaccgcac	cgatccagtc	cagtgcgtgg	gcggtggcga	15618
cccaggtgaa	ggagggcacg	atcacctcgt	ccccaggacc	gatgcccagg	gccttcgcgg	15678
cgacctggat	gccggtggtg	gcgttcgata	cggcgacgca	gtgcctgacc	tgggtcagct	15738
cggccacacg	ggcctcgaac	tcccggacca	gggggcccgc	attggtgaac	cacaggcgct	15798
ccagcgcccc	gtcgatccgt	tccatcaaac	ggtcgcggga	gcccacgttc	gggcgtccca	15858
cgtgcagcgg	ttcgtgaag	tagggcggtg	gtagggagtc	cagacgcacc	gggccgcgcg	15918
tcatgccgtg	cgcacgccga	cgaagaggcc	ggggctgttg	ggccggccgt	cggccagccg	15978
gaagccgggc	acgaaccgca	ccgagagccc	caccgattcg	aaggcgtcgg	tgtactgctc	16038
gcgggtgaag	aggctggagg	tcaggacctc	ggagaactct	ctgaagccgg	aggcgtccgc	16098
gacccggaac	cggacctcca	gacgtgactt	gtcgccctgg	cgcacggagt	gcgtcatccg	16158
cgtgatgaca	cgccctcct	cctggtgcag	atggccgccg	acatgcccg	cgaggaagtt	16218
ctcggggaaa	taccagggtt	cggcgacgag	gactcccccg	gggttcaggt	ggtgggcat	16278
ggccgacacc	gcggccttga	gctcggtgac	ggaccccatc	tcgccgagcg	cgttgcccat	16338
gcaggtgatc	gcgtcgaagg	tgcggcccag	gtcgaacgaa	cgcattgtcac	cggcgtgcag	16398
cgggacgccg	ggaagccggc	ccgccgcctg	ctccagcatc	gcgggcgcgt	actcgaggcc	16458
ctccacatgg	ccgaagagcg	tggcgagcgt	ctccagatgg	gctccggtgc	cgcaggcgac	16518
gtccaggagc	gacacggcgt	cggggcgggc	ggcgaggatc	agctcgggtga	gcccgcgggc	16578
ctccaggctg	aagtccttgc	cgcggctgcg	gaacacgagg	tcgtagaact	tcgcgtgctc	16638

E!  
Cont

ggggccgtac	tccatcagac	gagctccttc	gcagactggg	cggagatgat	tctgggctcc	16698
gggatgggaa	cgatgaactt	ccctcccgcc	tccaggaagc	ggcgctcctt	gcggacgacc	16758
tcgctcgggt	agttccaggc	gaggaggagg	tagtagtccg	gctcgggtggc	agcgacctcc	16818
tccggaggaa	ggaccgggat	gcgggttcccc	ggcagcagtt	tgccgtgctt	gaggctgggtg	16878
gtgtcgccgc	agacgggtgat	gtcctgatcc	gtcagaccgc	aggccatcag	caactgggtc	16938
cccttgagcg	gtgctccgta	gccgggccacg	cggtggccgt	ccgcggccag	accgcgaacg	16998
agcgtacgga	tcgcttcggt	cacgcgcgtc	acccgctcgg	cgaacgcccg	gtagggggca	17058
tccgtcagca	gtccgcgctc	ctcctccagg	ccgagcagcg	ccgcgaccga	gggctccggg	17118
acccgtgctg	ccgactcggg	cgccggcgacg	accgcgatcg	aaccgccgtg	cacggcgacc	17178
cgctccacgt	cgatgatccg	caggccgtgc	gcgccgaaga	ggtggcgag	tgtgtgcagg	17238
gagaagtacg	acaggtgctc	gtggtagatc	gtgtcgaact	ggttctcgtc	gagcaggttc	17298
agcaggtagc	gcacctcgat	gaccaggacg	ccgtcgtcgt	cgagcactgc	gtcgacgccg	17358
tccaggatgc	ggtgcacgtc	gtcgatgtgc	gcgaagcact	ggcggccgat	gacggccttg	17418
gccctgccct	gctcaagggc	gatgcggccc	gcgggctccg	ggccgaagaa	gtccgggtcc	17478
gtggggatcc	cccgggcgtt	ggcgatctcg	gcgaggttgg	ccgccgggtc	gaccccgccc	17538
acccgcatgc	ccgccgcccg	gaacatcgcg	agctgggtgc	cgacgttgct	gcccagctcc	17598
acgaccaggt	cgccggaggc	gaggcttgcc	cgccgggtcg	ccagcccagc	gatgtgcgcc	17658
atgtgctcgc	ggatctgggtc	ggagtcggag	gagacgtaga	cgtagtgtt	gaacagtgtc	17718
<hr/>						
ccggggtcga	cgacatggcg	aagcgtcatc	agccggcacg	accggcacac	gatgacgtcg	17778
agcgggaaga	cgctctgcgc	ctcatcggcg	tcggccggat	cgacgaacc	gttggccagc	17838
ggcagcgagc	cgaaggagat	cacctcggtc	cagtcgtccg	caccgcatac	acggcacgtc	17898
tcgtcccgc	tgcatttctc	cagcatgaag	tctcctgacg	gcgaatgccg	acgcacggg	17958
cccgtcggtc	cggggacggg	caatctaggg	ttccggccga	cgggcgctcc	acttcgtatg	18018
tgccctactg	gttcagcgga	gcggacgggt	gaacgcccgt	acgtcctcga	tgaggagctg	18078
cggtgctcc	atggcccgga	agtgcgccgc	gcggtcgaac	tcgggtccacc	gcgtcagggg	18138
cggcaggatg	ccctcggcga	acgaccggat	cgcccggtg	gcgtcgtccg	ggaacaccgc	18198
gacgccgacg	ggggccgtca	gcggccaggg	cccgcgccag	gtgcgggcga	agtccgccat	18258
gccgcgagcc	gactcgtagt	acaactgagc	gctggaaccg	gccgtcggcg	tcagccagta	18318

E1  
Cont

gatcatcacg	tgggtgagca	gccggtcccc	ggagatggcc	tcctccacgt	tcttgccgcc	18378
gctccactcc	tggaacttgt	cgagaatcca	ggcgagctgg	ccgaccgggg	agtcggtgag	18438
gccgtaggcc	aggggtctcg	ggcggtgggc	ctggatgccc	tgccagccga	tgccggtgtc	18498
ggcgaactcc	ccgctgtgcg	ccagcttgcc	caggctcgtc	tcgtccaggc	gcccgatggc	18558
ctccggggcg	tcctggggcg	ggaaggtcac	cagcatgttc	aggtggacgc	cggccacgtg	18618
ctcgggggtcg	gccagcccca	gctccagcga	gacgaccttt	ccccagtcgc	cgccctgggc	18678
gacgtaacgc	tcgtagccga	ggcggttcat	cagctccgcc	caggcgctg	cgatccgccg	18738
cacgtcccag	cccggctcgg	cagtcggggc	ggagaagccg	tagcccggca	tggaggggac	18798
gacgacgtgg	aaggcgctcc	ccgggtcggc	gccgtgcgcg	cgcgggtcgc	tcagcggccc	18858
gatgacgtcg	aggaactcgg	cgaccgagcc	cggccagccg	tgggtgagga	tcagcgggat	18918
cgcgtccggc	tcgggcgaac	gcacgtgaag	gaagtgcacg	tcggcgccgt	cgatcgtggt	18978
gacgaactgg	gggaacgcgt	tcagctcggc	ctccgcggca	cgccagtcgt	agccgtggcg	19038
ccagtggctg	gtgagctcct	tgaggtagga	cagcggcact	ccgcgggtccc	atccggatcc	19098
gggtatctcg	gacggccacc	gggtcgcgtc	gatccgccgg	gttaagggtcg	tcgaatgtcg	19158
gactgggtcg	atctcgatac	ggaagggacg	cacagtgaat	ccaccctcgt	gattgtggga	19218
gccccggggc	gcgagggggc	cgccccgatg	tgatccgggg	accgtgtctc	aggccgggtc	19278
ggccgggcgc	gccgcgcctt	cccgtgcgga	gaaggaccgc	acggaggaca	ggaagttgcg	19338
gatcatcggc	atgccgtggt	cggtcgggaa	gctctccgga	tggaaactgga	cggactccac	19398
<hr/>						
cggcagcgaa	cggtggcgca	ggcccatcac	gtaccgcgtc	tccgtggagc	gcccgggtgac	19458
ctcgagggac	ggcgggaccg	tgccttcggg	cacgatcagt	gagtggtagc	gggtcgcgaa	19518
gaaccccgcg	ggcagcccg	tgaacactcc	gcgcccgtcg	tcgtgatcc	ggctcgtctt	19578
cccgtgcatg	agatgccggg	cggggacggt	ggcgccgcgc	taggcgcggg	cgacggcctg	19638
atgccccaga	cagaccccca	gcagcgggac	ccggccggcg	aaggcctgga	cgatctcgac	19698
gtgcccggag	gtgtcggggg	ggccggggcc	cggccccagc	aggaccgcgt	ccggccgcat	19758
cagccccatc	tcgtccgggg	tcagagatg	cgaccgcacc	atgacgggct	ccgcgccggc	19818
ggacatcaga	tactggcgca	ggatgtcgac	gaagctgtcg	aacgcgtcga	ccaccaggac	19878
ccgccccggc	tcggtgcctg	cgccggatcc	gtcgggagac	cacaagctca	cagcaactcc	19938
tctccgggtga	ccgcccagtg	agtggcgctc	atcttggcca	gcgtctcggg	ccactccgcc	19998

E<sup>1</sup>  
Cont

cccgggttcgg	aatcggcgac	gattccggcc	gagggccggg	tgcggtagac	gccctcgtgg	20058
tggaaaaggg	tccggatgca	cagcgcgagg	ttggtgtacc	cgccacgtc	gaggaggccg	20118
agcgccccgg	cgtacaggcc	gcgggcggtg	cgttcgacgg	actcgatgat	ctccatggcg	20178
cggatcttcg	gcgcgcccgt	catggtgccc	gcggggaaca	gggcggcgat	ggtgtcgaag	20238
gcacgggtgt	ccaccgcgc	ccggccgacg	accgtggaga	ccagggtgcag	cacgtgggag	20298
tagccctcca	cgtccagctg	gtcgggtacg	tcgagcgtgt	tcggccgggc	gatccgtccg	20358
atgtcgttgc	ggcagaggtc	caccagcatg	gtgtgctcgg	cgatctcctt	gggatccgac	20418
ctcagccgga	ctcccgggc	gatgccgcg	tccgcgcgg	accgcggcac	cgtgcccgcg	20478
atcggccgca	tcgtgacctc	gccgtcctcg	atgcgtacga	acagctcggg	gctggcgccg	20538
atcagacggg	gcccgtcgat	gcccgcgaga	tacatgtacg	gggaggcggt	ccgccgcgc	20598
aggcgctggg	agacgtccgc	ggggtcggcc	gtcgagcgga	tggagagctc	gtgaccgata	20658
tgcacctggg	agatgtcgcc	gacggcgatg	tgttcagac	accgctcgac	gtcgttcgcg	20718
aacacttcgg	gggcgctgtc	gtcgggtgacc	gcggaggcgg	ggaagccgtc	tgcggacgga	20778
tcgggccagg	cctgctccac	gtcggcgagg	agcccgggtga	cggctctccg	cgcgaggccg	20838
ggccagtacg	gggactcgtg	gagcagcagt	tcgcatcggc	cgggtggcgag	atcggtgacc	20898
acgctgcccc	ggtgcaggac	catgcgtacg	tccggcaggc	caggccgggt	ctcgatgagg	20958
tggggcaggg	cctcgatgta	gcgggccgtg	tcgtaccgga	agaacccgag	gaaccggaag	21018
cgggaagccg	acgcggaccc	ctcggcgctg	aacatgtccc	gcattggccc	cagcagcggc	21078
cacaaccgc	ccgcgggtacg	cagccgcagc	ccctgggggc	cgctctccag	gagcgcgccg	21138
gcccgtccca	ggagcaggcc	ccgcaggggc	ggtacgcctt	cgacgcgcac	caccgggtcg	21198
gtgaccgaga	gcgagagcag	cgcgcggaag	ccgacgaact	ggtgcctgcg	gtcgcggggc	21258
gggcggggcg	cggactccag	gaggtagacc	tcgtcggggc	cgaagtgtc	ggccagcgcg	21318
cggtaggcgg	gcagggcgcc	cgtctccttc	acatcgaggc	gtcgtgtccg	caccgcacc	21378
ggggccgaga	ccacgcactg	gtcggtcate	ctgggtcctc	ccggatcacg	tggatgatgg	21438
gtagcgggtg	gccacctgac	gggcggtcag	caccgcccgg	tcggggccgg	agcggttgtc	21498
gacgacgcgc	gcggccttcc	agctgacgaa	ggagccgggt	tgggtcacgg	ggtcgaggtc	21558
ggtgtccacg	acgatgccgg	cgtgcgcgcc	ggtccgctcc	ctgagccggg	cggcgacggc	21618
ctcgccgatg	ccctgccgtt	ccccctcggc	gccggccagc	aggtccatgc	gcacgggtgac	21678
ggcgtcgctg	ccgtcgtcct	gccggtcgat	gacgacctgg	tagccgaggc	agccgccgac	21738

E1  
Cont

cccgtcgagg atcgcgccct ccagctcggc gggctggagg gtcacgtcgc ccagggggat	21798
gggttcgcgcg acccgccga tgacctggat ccgcgggtccc ggcagcggct ccccggggcc	21858
cgccgggagg atgcggacca ggtccccggt gcggtagcgg atcagtgggt tgatgccgtc	21918
caccagcatg gtgaggacga gttcgccctc tcccggtgcg ccgaccacgg cgccgggtgc	21978
cggttcgacg agttcgggtca agtagttggg ctgggcgagg tggagcgctc cgggtgtccgc	22038
tccgggtggcg atgcacaggg ctctctggga gccgtagagc gtggggccgca cgacggcttg	22098
cggccagagg gtgcgccagt tgtcggcgaa ctgcgggggtg cagatctcac ccagcgtgag	22158
gaagagcttc acgggaagcc gggccaggtc gtagccgtag tgcagggccg ccttggaag	22218
gtcaggcac agcgccggag cacagacgac gacctcgacc tccagctcct cgatcagccg	22278
cagcgcctta cggaatccca ccctggggga ctcgggccag atcttgacgt gacaggcccc	22338
cagctccgct gccaccgcgg tgaacacgtc cccgaacgcg tacagctccg acggccccat	22398
caggccccacg acgggcatcc gcccccgaa cctcgcttcc agcatgcggc gccaggactc	22458
ccggacggcg atgttgctgg tcgcgatgtc cttctcgccg cgtgggcacg ggggtggccgc	22518
cccgggtggtc ccgggtggtct cgtagtagat gcgtgcttcg tgcagcgggc ccgacaggac	22578
gtcgtgcac tcccgccgca ggtcgtcctt ggtggtgaag ggcagggtccg ccagggttcgc	22638
gggggtgacg gcctcgacgt ccacgcctgc cagatggcgg cggtagaacg gcgagcggcg	22698
ggtgacgtgg cgcagtacgg ccgtcagccg ttcgccctcc cagcgtcgc ggtcggcggc	22758
ggtgagttcg ccgcggtaga acgcgtcgct cacctgcccg taggcggacc agaactcgct	22818
gtccgcgtcg ggtccagcg gcccggtccc gccgggaccg ggccgcccgc cgtctctcac	22878
ggctgtgcct ggagttcggt gagcgcgagg ccgaccgct cgttgacctc gttggaggcc	22938
agcacgtccg aacggccggt gagccgacgg tgttcgtcga gcagttcgat catgtccgtc	22998
atcctctcga ccaggcgca gacgttggtg aggcctcct cgtccttgag cgcgtcgccc	23058
cgggtgcagcg cgtgcaccgt cgccgggaag ccgctgcccc ccaggatcat ccggttgagc	23118
agggcattga cggtcagctg agccataacc tcgccggcgc tgtagcggcg ggcagccgag	23178
atgatccccg cgacctgtt gtcagcggc cggtcgaagc gcagataacc gactccggca	23238
cgctcgatga aggtctgcat gaggctggcc gtgccgaatc cgtgcacggg cgccgcgaag	23298
atgatcccg cgcgcgcac catcttcgcc acgacctcg gcaccccgtc ggccagggtg	23358
caggccaccg gcctgtcgtt gcagtcctcg caggggccgc accgctccat cctgatcgag	23418

E1  
Cont.

cgcaggtcga	cggcctcgaa	gtcgacgccg	cggttctctg	ctacgcgtgc	cgcgtgccgc	23478
agtacgtcgg	cgggtgttgcc	gtcacgttcc	gaaccgttga	tcgcgaggat	cttgagttgt	23538
gcgctcacga	ggggcctcct	tggtgagtca	ggtgcgctcg	gcggtcggct	cgggggaact	23598
gtctggccgc	cgcgtggtccg	ggagccgcag	ggccggctcg	gcgggggcgg	gaggaagacc	23658
gccccgcggc	gggcccacac	gctcgccgaa	ccggatgagg	ggcttctcga	cgagatagaa	23718
gctgatggtc	gccagcacga	cgcgtgatcg	gatcgtgaag	aggaacagtt	cccagaaccc	23778
catgtcaccc	cgggaattccg	gcgttggcac	gggagacttg	ccgaagatgc	tgccgttcct	23838
gagccagagg	ttgatcacga	tctcgtgcc	gaggtagacg	ccgagggaga	tctggccgag	23898
gaagaggatc	ggcttgctgg	tgaagagcgc	gtccgagaa	cgggactcgg	cgccggggac	23958
cgtcatcggt	gccaggagca	gcagggtgaa	ggaggtcagg	atgaagtgg	cgacgagctc	24018
ctggggccagg	gccgcgttgt	cgcccatgcc	cgggatgccg	atgggcttgg	tggcgtagag	24078
gaggtacagc	gggatgagcg	ggaccacagc	gatcagcggg	cgccggatca	cgaaacggta	24138
gaagcccggg	gtccctggcg	tcgcctcggc	gtacgcggag	tagatggcca	gtgccatgcc	24198
cgcggcgaag	cagccggcgt	agtagggcgg	ccagtaccac	tgcacgtcgc	cgccgggtga	24258
ggggagggtt	gtgtacgtga	cccagccgat	ggccatgact	tccagcgcgg	ccagcggcag	24318
caggaggcgg	cgtgccttct	gccccggagt	gctgccgccc	cgcgcgagcc	ggtggccgat	24378
ccaggcgatc	agcggcaggg	cgaggtagaa	cgtgaactcg	gcggggaccg	tccaggtggg	24438
ctcgatgccg	tgcacggcgt	ggccctcggg	cagatagaag	tgcacgagca	gcacggggccg	24498
caggacgtcg	ctgacgctgt	cgatctcgaa	ccagttgtag	cgggggattg	cgaagacgag	24558
caacaggtag	taggcgggca	ggatgcgcag	ggcccggcgt	ttgaggaacc	gtccgggtggc	24618
ggggcgcttc	gtccactga	tggtgacgcg	ggcgtagggc	ttgtacagca	tcattccgga	24678
cagagcgaag	aagggggaag	gcatacccc	agaccgtccg	cgaggacgcc	ccagaacggt	24738
ttgcccggct	caccgacgaa	gctgcccact	ccggcctgga	aggcgacgtg	gtagacgacc	24798
acaccacagc	cgaggacacc	tcgcagtccc	tcgaacttcg	gtattcgctt	gctttttgcg	24858
ccacctgcgt	cgcgaaggac	gtcccccatg	gaacagtccc	ctttcccttg	gcacttgctc	24918
gttgacttcc	cgaaatagtc	gggtctgcgg	agtgtgagcc	gcacatccaa	tcgtgctgtt	24978
ccggtgctca	ggacgacttg	tttcggcctg	agtgggaagg	cagccacccc	cgcgcgccc	25038
cctcggccag	accggggggc	gaggagtccc	gttccgagag	gatcggagtg	atctccggcg	25098

E  
cont



gccaggcgat	gcccacctcc	ggatccagcg	gattcaagcc	atgttcgagc	cgggggctgt	25158
aggccgccga	gcacaggtag	acgatcaccg	cctcgctcgt	cagcgtgagg	aatccgaagc	25218
ccagccccgc	ggagacgtac	agcgcccgtc	cgttctcttc	gccgagctcc	acgggtccgcc	25278
agccgccgaa	ggtggggcgac	cccacccgga	tgctgaccac	ggcgccgaac	acgctgcgcg	25338
gcaggcagct	gaagtacttg	gcctggccgg	gtacgcccc	ggcgaagtgg	atgccccgca	25398
gcaccccggtg	ggaggagatc	gcgcagttcg	cctgcgcgag	gtcgaaggag	tggcctacgg	25458
tgccggcgaa	gggctcgccc	tgggaacct	cgcgaaacga	gccccgttcg	tcacggaaga	25518
cctgtttctc	ctcgtccac	gctcccagaga	tcccgatcgg	cttcacgtct	ggcccccttct	25578
ctcgacttct	ctcgacgact	cgcgggaggg	ggccgagggg	tccgcccggc	ccgtgggaac	25638
gccgcagtct	agatgcggcg	gcaccggggg	caggggggtg	cggacgacgt	ccgccccacc	25698
tcagcacacc	gggagatgca	ggtcgggtgac	gggcgacgtg	acgatgcaac	ggtccgaggc	25758
ccggttgccc	ggacgacggc	ccacagagcc	atcggagcaa	cggaggcgga	ccgcagatga	25818
ccaagcacgc	ccgtgaccgc	gcggtagtcc	tccggcgagg	gatggcgggg	ctgctcgccg	25878
cgcgcgtcct	gtccgagacg	tacaaggaag	tgctggtgat	cgaccgggac	cggttgggcg	25938
gcacggagca	gcgcgcgggt	gtcccgcaag	gacgccacgc	ccatgcgctg	ctggccaagg	25998
gacagcagat	cctcaacgaa	ctcttccccg	gactcgacac	cgaactcacc	tcggccggaa	26058
tccccgcggg	ggacatcgcc	gggaacctgc	ggtggtactt	caacggccgc	cggtctccagc	26118
ccttcgacac	cggtctgatc	agcgtctcgg	cgacgaggcc	cgagctggag	tcccacgtgc	26178
gcgcacgggt	cgccgcgctg	ccacaggtga	agatcatgga	cgggtgcgtg	atccggggcc	26238
tgaccgcctc	ggccgaccgc	agccgcgtca	ccggtgtcga	ggtggctcgac	gagtcgggta	26298
cggacacccc	gacgcgcctg	gaggccgacc	tcgtcgctga	cgtcacgggg	cgcggtctgc	26358
ggactccccg	ctggctggag	gagttcggat	acgagcggcc	cgcggaggac	cgcttcaaga	26418
tcgatctggc	gtacaccacg	cgccacttca	agctcaagga	agaccctac	ggcacggacc	26478
tgctgatcaa	cccggtgga	tcgccgagca	accgcgcggg	cgcgttcttc	ccccggctcg	26538
cggacggcag	ctcccagctc	tccctcaccg	gaatcctcgg	cgaccacccg	cccaccgacg	26598
acgagggttt	cctggcggtt	gccaagtcgc	ttgccgcgcc	ggagatctac	cgggccgtcc	26658
gcgatgccga	acctctcgac	gaaccgggtca	ccttcgcgtt	cccggcgagc	gtccgcgcgc	26718
gttacgagag	gctgcgccgt	ttccccggcg	ggttcctcgt	catgggcgac	ggcgtgtgca	26778
gcttcaaccc	cgtctacggc	cagggcatga	cggtcgcgcg	cctggaggcc	gtggcgctgc	26838

E1  
Cont

gggaccactt	gcgcgacgcc	ccggaccccc	acgccctgcg	cttcttccgg	cgtatctcca	26898
cggtcatcga	cgttccgtgg	gacatcgccg	ccggagcgga	tctgaacttc	cccggggtgg	26958
agggcccccg	caccatgaag	gtgaagatgg	ccaacgccta	catggcccgc	ctgcacgcag	27018
cggcagccgt	cgacggcgcg	gtgaccgggg	cgttcttccg	ggtggccggg	ctggtggacc	27078
ccccgcaggc	cctgatgcgc	ccctccctcg	ccctgcgggt	catgcgcaac	tcctcggcga	27138
agccgtcggg	cccttcgggc	gccgcgctat	gaccgcgcgg	cccgtccggg	gcggctgccg	27198
gggccaggag	ccgacatgcg	ggtgatgata	acggtgttcc	cggcgcgggc	gcacttctcg	27258
ccgctggtgc	cctatgcctg	ggccctgcag	agcgcgggcc	acgaggtatg	tgtcgtggcg	27318
cccccggggt	atccccaccg	ggtggccgac	cccgaacttc	acgaggccgt	caccgcggcc	27378
ggcctgaagt	cggtgacctg	cgggcagccg	cagccgctgg	cgggtccacga	ccgcgacgac	27438
cccggctacg	cggcgatgct	gccgaccgcg	gcggagtcgg	agcgtctacg	ggcggccctc	27498
gggatcagcg	agaaggagcg	ccccacctgg	gacgtcttct	accacttcac	cttgctggcg	27558
atccgcgact	accatccgcc	gcggccgcgg	caggacgtgg	accaggtgat	cgagttcgcc	27618
cggatctggc	agcccgatct	ggtgctgtgg	gacgcctggt	tcccctcggg	cgcgatcgcg	27678
gcgcgggtca	gcggcgccgc	gcacgcgcgg	gtgctcgtag	cccccgacta	caccggctgg	27738
gtcaccgagc	ggttcgccgc	cgcggggccc	gcggcggggg	ccgacctctt	ggccgagacg	27798
atgcggccgc	tggccgagcg	gtacggcggt	gaggtcgacg	acgatcttct	gctcggacag	27858
tggacgggtca	atccgttccc	ggcgcgcgat	aaccgcgcga	cccggctcac	gaacgttccg	27918
gtgcgctacg	tgcctacac	cggtgccagc	gtcatgccc	cgtggctgta	cgcgcgcccg	27978
tcgcggccgc	gggtggcgct	gtcgtctgga	gtgtccgcgc	gggcgttctt	caagggtgac	28038
tgggggcgta	ccgccaaact	gctggaagcg	gtcgcggagc	tggacatcga	ggtgatcgcc	28098
acgtcaacg	acaaccaact	ggcggagagc	gggcgcgtgc	cggacaacgt	ccacaccctc	28158
gactacgtac	cgctcgacca	ggtgctgccc	acctgctcgg	ccgtcatcca	ccacggatcg	28218
acgggcacct	tcgccgcggc	gagcgcggcc	gggctgcccc	aggtgggtctg	cgacaccgac	28278
gagccccctc	tgtcttccgg	cgaggacacc	cccgcggcca	tcgctgaggga	cttcacctgc	28338
cagaagcagc	tcaccgcgac	gtcacctctc	cgcgtggtca	ccgactacgg	ggcgggggtg	28398
cgcgtcgacc	accagaagca	gtccgcggga	cagatccgtg	agcaactacg	cagggtgctc	28458
accgaacctt	ccttccgcga	gggcgctcga	cggatccggg	aagaccggaa	ttccgcccc	28518

E1  
Cont

agcccgggtcg aactcgtatc gtccttggtga gaactgacga agcgtcatcg ccgtgacaag 28578  
 gagggcgacc gatgaggatg ctggtgacgg gcggagcggg ttctatcggc tcgcagttcg 28638  
 tgcggggccac actgcacggc gagctgccgg gttccgagga cgcgcgggtg acggctcctgg 28698  
 acaagctgac gtactccggc aatccggcca acctcacctc cgtcgcggcc catccgcggt 28758  
 acaccttcgt ccaggggcgac accgtcgacc cgcgcgtcgt cgacgaggtg gtcgcgggcc 28818  
 acgacgtcat cgtccacttc gcggcgaggt cgcacgtgga ccgtcgcacgac gacaccgcca 28878  
 cccggttcgt caccaccaac gtgctcggga cccagacgct gctggaagcg gctctccggc 28938  
 acgggggtcgg ccggttcgtg cacgtgtcga ccgacgaggt ctacgggtcg atcgctcctg 28998  
 gtcctatggac cgaggacacc ccgtcgcgcc ccaacgtccc ctacgcggcg tcgaaggcgg 29058  
 gttcggacct gatggcgctc gcctggcacc gcaccggggg cctggacgtc gtcgtcacc 29118  
 ggtgcaccaa caactacggt ccctaccagt accccgagaa ggtgatcccg ctcttcgtca 29178  
 ccaacatcct cgacggcttg cgggtgcccc tgtacgggga cggcgccac cgccgggact 29238  
 ggctgcacgt gtccgaccac tgccgggcca tccagatggt catgaactcc ggccgggccc 29298  
 gggaggtcta ccacatcggc ggcggcaccg aactctccaa cgaggaaactc accggcctgt 29358  
 tgctcacggc gtgcggcacc gactggctct gcgtggaccg ggtggccgac cggcaggggc 29418  
 acgaccgcg ctactcgtc gacatcacga agatccggca ggaactgggc tacgagcccc 29478  
 tggctgcctt cgaggacggc ctggccgcga cgggtgaagtg gtaccacgag aaccgttcgt 29538  
 ggtggcagcc gctgaaggaa gcggccggcc tcttgacgc cgtcggctga cggcagccac 29598  


---

 cgctaggaac accccaggaa aggagccacc tccgtgacag cagtcaagga gccgacgtcc 29658  
 cgcgaggac ggccgggagtg gatcgctctc gtcgtcctct ccttgccac gatgctgttg 29718  
 atgctggaca tcaacgtcct catgctggcc ttgcgcaggt tgagcgagga tctcggcgcg 29778  
 agcagcacgc aacagctgtg gatcaccgac atctacggat tcgcgatcgc cggcttctcg 29838  
 gtgaccatgg gcaccctcgg cgaccggatc ggccgcgcga ggctcctgct cgggggccc 29898  
 gccgtcttcg cggctcgtgc cgtcgtcgcc gcgttctccg acagcgcggc gatgctcgtc 29958  
 gtcagccgcg ccgtgctcgg cgtcgcgggg gccacggtga tgccctcgac gtcgcgctc 30018  
 atcagcaaca tgttcgagga cccaaggag cggggcaccg ccatcgccat gtgggcgagc 30078  
 gccatgatgg ccggagtcgc cctcgggccc gccgtcggcg gcctggctct cgcgcgcttc 30138  
 tgggtggggat cgggtgtcct catcgccgtt ccggtgatgc tgctgggtgg ggtcacggc 30198

E  
 cont.

cccgtgctgc	tcaccgagtc	ccgcgacccg	gacgccggac	ggctggacct	gctgagcgcg	30258
gggctctccc	tcgcgacctg	gctgccgggtg	atctacggac	tgaaggagct	ggcccggacc	30318
gggtgggacc	cgctcgccgc	cggcgcggtg	gtcctcggcg	tgatcttcgg	cgcgctgttc	30378
gtccagcgcc	agcggcggtt	ggccgacccc	atgctggacc	tcggcctctt	cgccgaccgc	30438
accctgcggg	cgggtctgac	ggtcagtctg	gtcaacgccg	tcatcatggg	cgggaccgga	30498
ctgatggctg	ccctgtacct	ccagacgata	gccggtcact	ccccgttggc	cgccgggctg	30558
tggttgctga	tcccggcctg	catgctcgtc	gtgggcgtac	agctgtcgaa	cctgctggcc	30618
cagcggatgc	ccccttcccc	ggtgctgctg	gggggactgc	tgatcgcggc	cgtcggacag	30678
ctcctgatca	cccaggtgga	caccgaggac	accgccctcc	tcatcgcggc	caccaccctg	30738
atctacttcg	gcgcctcacc	ggtggggccg	atcaccacgg	gcgcgatcat	gggagccgcg	30798
cccccggaga	aggcgggtgc	cgcctcgctg	ctgtccgcca	cggcgggcga	gttcggagtg	30858
gcgctcggca	tcgcgggcct	ggggagttctg	ggcaccgtcg	tgtacagcgc	cggggtcgag	30918
gtgccggacg	cggccggggc	cgccgacgcc	gacgccgcgc	aggagagcat	cgccggcgcc	30978
ctgcacacgg	ccggtcagct	ggcaccgggc	agcgccgacg	ccctgctgga	ctccgcgcgc	31038
gcggccttca	ccagcggcgt	gcagtccgtc	gccgcgtctt	gcgccgtggt	ctccctggcg	31098
ctcgccgtcc	tcatcggcac	ccggctgcgg	gacatttccg	cgatggacca	cgggcacggc	31158
gaggaaccgg	ccgagaacga	cgctcaaccg	gccacatgag	cgcacttccg	gagatgcaac	31218
ggccgcgctc	gaggtatgag	gatcaccttc	cggggtgcac	ctgcacggca	acggaggcgt	31278
agtggagtac	tggaacagca	cggcggagac	catgccccgc	caggaactcg	aacagtggaa	31338
gtggcgcagg	ctccaggccg	ccatggacca	cgccagaagg	ctttcgccct	tctggcgggg	31398
acgactcccc	gagaacatca	cctccatggc	ggactacgcg	gcgcgggtgc	ctctcctgcg	31458
caaggccgac	ctcctcgccg	cggaaagccg	gtctccccct	tacggcacct	ggccctcgct	31518
ggatccggcg	ctcggagtgc	gccatcacca	gaccagcggc	accagcggta	acccccccat	31578
ccggacgttc	gacaccgaac	gcgactgggc	ctggtgcgtg	gacacgttct	gcacggcgct	31638
ccacagcatg	ggcgtgcgcc	cgcaccacaa	gggtctgggtg	gcgttcggct	acgggctggt	31698
cgccgggttc	tggggcatgc	actacggcct	cgagcgcgatg	ggcgccacgg	tcatcccggc	31758
cggcggcctc	gactccccgt	cccgggtacg	gctgctggtc	gactaccaga	tcgaggtgct	31818
cggcctcaca	ccgagctatg	cgatgcggct	gatcgagacg	gcccgcgaga	tgggcatcga	31878

E1  
Cent

cctcgccccg	gaggctaacg	tccagatcat	cctggccggg	gcgagagccg	gctccgcgtt	31938
caccacccgc	accatcgagg	aggccttcgg	cgcccgggtc	ttcaacgccg	cgggcaccac	31998
tgagttcggg	ggggtgttca	tgttcgagtg	caccgcccgg	cgcgaggcct	gccacatcat	32058
cgaaccctcg	tgcacgagg	aggtgctcga	cccggtgacg	gaacagcccc	tcggctacgg	32118
cgaggagggc	gtccgagtca	ccaccgggct	gaaccgtgag	gggatgcagc	tcttccggca	32178
ctggaccgag	gacgtcgtgg	tcaagcggcc	ccacaccgag	tgcggtcgcg	gccggacgtg	32238
ggactttctac	gacggcggca	tccttcggcg	cgtggacgac	atgcgcaaga	tacgcggggt	32298
ctcgatcacc	ccggtgatga	tcgaggatgt	gctgcgcggc	ttcgacgagg	tgaacgagtt	32358
ccactcgctc	atccggaccg	tccgcggact	cgatacgatc	cacgtcaagg	tcgaggcggg	32418
agacatctcg	ggtgaggcgg	ccgagagcct	gtgcggccgc	atcaccgagg	agttcaagcg	32478
tgagataggc	atacggcccc	aggtggagct	gacccccgcg	ggcagcctcc	cccgatcgaa	32538
gtggaaggcg	gcacgacttc	atgacgagcg	cgaactcgcc	cctcaggcct	gagcaggtgg	32598
agcagctcct	ggtgagctac	cggagcctgg	gcctgctgga	gcagagctgc	gcggtcccgg	32658
ccgtgctcgc	cgcggtcagg	gccgcccgtg	cggaactccg	tatcgccctg	gacggccagg	32718
gcgtggagtt	cgagtactac	cgggggcacg	acgacagcct	cgtggcctga	acccaccccc	32778
ggtccgcccg	gtcagacgaa	agggagaccg	gtgccccacg	gtgcagagcg	cgaagcgagc	32838
ccggccgagg	agagcgccgg	cacccgcccg	ctgaccggcg	aggagtatct	ggagagcctg	32898
cgggacgcgc	gggaggtgta	cctcgacggc	agccgcgtca	aggacgtcac	cgcgcatccc	32958
gcgttccaca	acccggcccc	gatgacggcc	cggtgtgtac	acagcctgca	cgacccccgc	33018
<hr/>						
cagaaagcgg	tcttgacggc	gcccaccgat	gccggtgacg	gtttcaccca	ccgcttcttc	33078
accgcaccgc	gcagcgctga	cgacctggtc	aaggaccagg	ccgccatcgc	atcctggggc	33138
cgcaagagct	acggctggat	ggggcgcagc	cccgaactaca	aggcgtcggt	cctcggcacg	33198
ctggggggcca	acgccgactt	ctacgagccc	ttcgcgga	acgcccgggc	ctggtaccgg	33258
gagtcgcagg	agaaggtgct	gtactggaac	catgccttcc	ttcaccgcgc	ggtcgaccgc	33318
tcgctgcccc	ccgacgaggt	gggcgacgtc	ttcatccacg	tcgagcggga	gaccgacgcg	33378
ggcctgggtg	tgagcggggc	caaggctcgtc	gcgaccggat	cggccctcac	ccacgcggcg	33438
ttcatctcgc	actggggact	tcccatcaag	gaccggaagt	tcgccctggg	ggccaccgtg	33498
ccgatggacg	cggacggcct	caaggtgatc	tgccgtccct	cctactccgc	aaacgcggcg	33558
accacggggc	gcccgttcga	caaccgcgtg	tctcacggc	tggacgagaa	cgacgccatc	33618

E!  
Cont

ctcgtactcg	accaggtgct	gatccccctgg	gagaacgtgt	tcgtctacgg	caacctgggc	33678
aaggtacatc	tcctcgccgg	acagtccggg	atgatcgaac	gcgccacctt	ccacgggtgc	33738
acccgggctcg	ccgtgaagct	ggagttcatc	gccgggctgc	tggccaaggc	gctggacatc	33798
acccggggcga	aggacttccg	cgggtgtcag	acccgggctcg	gagaagtcct	ggcctggcgc	33858
aacctcttct	ggtcactgtc	ggacgcggcg	gcccgcgaacc	ccgtccccctg	gaagaacggc	33918
acgctcctgc	ccaacctca	ggcgggtatg	gcctaccgct	ggttcatgca	gatcggctac	33978
ccgcgggtcc	tggagatcgt	ccaacaggac	gtggccagcg	gcctcatgta	cgtcaactcc	34038
tccacggagg	acttccgcaa	ccccgagacc	ggccccctact	tggagaagta	cctccggggc	34098
agcgacggcg	caggcgccgt	cgagcgtgtc	aaggtgatga	agctgctgtg	ggacgcgggtg	34158
ggatccgact	tcggcgggccg	gcacgaactc	tacgagcgga	actactccgg	gaaccacgag	34218
aacacccgga	tcgagttgct	gctgtcgcag	acggcgagcg	gcaaactgga	ctcgtacatg	34278
gacttcgccc	aggcatgcat	ggacgagtag	gacctggacg	gctggaccgc	tcccgacctg	34338
gagtcgtttc	acgcgatgcg	ttccgcctcc	cgcgaccttc	tcggaggggt	gtagttcccc	34398
gacggtgtac	tgcggccccc	gatccggggg	ccgcagtaca	ccgtcggggc	ggctgggtgct	34458
cagccgcgca	ggaatccgat	gagctcgggg	gcgagcttct	tgggcgccat	ggcgacggca	34518
ccgtgggttga	gcccgttcag	ggtgcgggtg	ctcgcgtcgg	ggaggactcc	ggtgagttcc	34578
ttcgcggcac	gctggaaacc	gtcggggctc	ttggaaccgg	tcagcaccag	ggtcgggggc	34638
gacgccgcg	accacggctc	ggcggggagc	ggcttgccct	gctgggtgtc	gcccatacc	34698
gcgatgtcgt	aggggaagcgt	gttggccaga	cccttgaggt	tggaccagac	accgggcatc	34758
aggcgcatgg	cgccgaccat	gaaggagggc	atgccctgtg	ccttgaccat	gaaggccttg	34818
accgcgtcgc	tgcgtcggtc	ctccgccaga	aggctgtcga	tctgaccgcc	gaagccggcg	34878
ggcgggccga	agccgtccga	ggtgacggag	aacggcggtc	cgtagaccgc	gagcttgttc	34938
accttcaggc	cggcggcggc	ggctcgcagg	gcgagcaccg	cgccggaaga	gctgccgaac	34998
agggaggccg	aaccgccgac	ctggtcgata	agcgccgcga	tgtcctcgat	ctcgcgctcg	35058
accgcgtacg	ccggaccgtc	ggcgctggcg	ccgcggcccc	gacggtcgta	gttgacgacc	35118
gtgaagtgct	cggcgaggag	accggcgagc	ttcttggcgt	cggagcggtc	ggccaaggcg	35178
gaggccacca	ggatcacgcg	cgccccctcg	cccacttgt	cgaaggcgat	cgtggtgccg	35238
tcggccgata	ccgtcgttga	ttccaccttg	gctgctttct	cacgggttga	agacatagct	35298

E1  
Cont

tccctcagat	cacattgtgg	ggcgtgctgc	cgacagtgga	gaccggcgtc	cggaggaaaa	35358
gtaatcggtc	ctgccagaat	tgggggttcc	ggagggcacg	ccgaccgctg	cacgacggcg	35418
cgccccgacc	ttccggacat	tgtcgtgccc	tcagatgtgt	ttcgcattctt	caggagtgtc	35478
cagtgatccg	tgaggtgaga	aagggaacgg	ggtccggcca	gtcgttgccg	cgcgggctgt	35538
tctggtaagc	ggccagacgc	cactgcccgt	cctgttcgac	ggccagccag	gaggccccga	35598
cggcgccgtc	gccgctcgcc	tcggtctccc	ccggggcgag	gatgccgccc	tcggtgatga	35658
gcagggcgat	gccgctcgcc	agcaggcgcg	cgctgatggg	gctgccgatg	acacgggtgc	35718
ccttgtagcg	gcccgcgaag	gcggccgcca	tgtgggtgcg	gatgttctcg	cggcccttgc	35778
ggaagaggcc	ggggaggatc	atcgtcccgt	cctcggcgaa	gacgtcggcg	aaccggtcgg	35838
cgtcgtggtc	ggcccaggcg	gccacgatgc	gcgcggcgag	agcggctacc	gctgccaggg	35898
cggcgctggg	agcggagggtg	gtcaggtcgg	tgtcgggtcat	atcgcgggtc	ccgtccgttg	35958
gttggcggtt	tcggcacggc	ccgcagccct	gcccagagccc	gacgctggca	ggcggccccg	36018
tcacagggca	tctcctgcgt	tgcgccccac	gccagtcact	tcacggccag	aacaagtgcg	36078
gcattctgga	agaagctgag	gcccgcgacc	cgggtgcgacg	atctgcggtg	tcacggagtt	36138
cgcacacgtt	tacgcacgga	ggctcgatgc	ccgtgtgcaa	tggatcgggtg	cagtcaggcc	36198
agtcgcaccg	acgctccgtc	gtggcgacgg	tgggtgggcaa	cttcgtggag	tcgttcgact	36258
ggctcgccct	cgggctcttc	gtcctctctt	tcgcgggtca	gttcttcccc	tcgtccaacc	36318
agttcacctc	cctgctcggc	gcgttcgcgg	tcttcggcac	gggcatgctc	ttccggccga	36378
<del>tggcggggt</del>	<del>cctgctgggc</del>	<del>cgctcgcgc</del>	<del>accggcgcg</del>	<del>ccggcgcccc</del>	<del>gccctgatgc</del>	<del>36438</del>
tggcgatcgg	actgatgacc	ggcggctcga	ccctgatcgc	cgtcgtcccc	acctacgagc	36498
acatcgggat	cctcgccccg	ctgcttctgc	tgctcgcccc	gctcgcccag	ggagtctcct	36558
cgggcgggga	atggacagcg	gcggccacct	acctgatgga	gatcgcgccg	aagaaccgcc	36618
ggtgcctcta	cagcagcctc	ttctccgtga	cgaccatggc	gggccccttc	gtcgcacgcg	36678
tgctggggcg	gggcctcggc	gtgtggctgg	gaaccgcgac	gatggaggcc	tggggctggc	36738
gggtgcccgt	cctcctcggc	ggcgtcttcg	gcgtgatect	gctgttccctg	cgcgctcggc	36798
tcaccgagac	cgaggtcttc	cgccgggagg	tgccggccccg	ggcccggcg	ggctcactgg	36858
gccagctgat	cggagcccac	cgccccagg	tgctgctggc	cgtgatgctg	gtggccggac	36918
tgggcgtcat	cggcggaacg	tggtcgaccg	cggtcccggc	gatgggccac	cgtctgatcg	36978

E!  
Cont

gctcgcagac gatgttctgg gtggtggtct gtgtgaccgg ctcggtcatc ctgctgcagg	37038
tacccatagg gctgctcgcc gaccgggtgg aaccgggcag gttcctgac gtctccagcg	37098
tcgtcttcgc cgctgtgggc tcgtacgcct acctaccgt ccaggactcc ttcgcgagcc	37158
tggcgttcac gtacagcacc ggagtgatct tcctcggctg cgtcaccatg gtgctgccga	37218
agatgctctc cagaatcttc cctccgcaga tacgcggcct gggcatcggg ctgccgcacg	37278
cctcgaccac cgcactctc ggcgggggcg ggccactgct ggccgcctac tccgacgagc	37338
gaggcgctc gggctggttc atcgccgcg tgatggccgc ggtcctgctc gcctggccgg	37398
ccaccctgtg ggagcgacgg ctgttccgcg cccggacggc cccgggaagc gagccggttc	37458
ccgaatccgc cgtcgcccg cccgtcgggt gaccgtccgc acttctgcat cccgtccggc	37518
accgagcgcc ggcgaccttc ccgactgaga ggttgacatc atgacgacgt ccgacaccac	37578
cgaccggtcc caggacggcg tgccgcgct ctccttccac caggagtcc tgtgcatggt	37638
cgacagcggg aacgacggcg ccgacgtggg gccgttcggc cccatgtacc acatcgtcgg	37698
agcctggcg ctgaccggcg ggatcgacga ggagaccctg cgcgaggcg tgggtgacgt	37758
cgtcgtgcgc cagcaggccc tgcgcacatc gctggtccgc gaagggtggc cgcaccggcc	37818
ggagatcctg cctcgggggc ccgccgcgct ggaggtcctg gatctcggcg acgtcgacga	37878
gtcggagcgg gtgcggcgcg gtgaggaact gctcaacgag gtggagtcca ccggtctgag	37938
cgtgcgggag ctgcccctgc tgcggggcgt gctcggacgc ttcgaccaga aggacgcggt	37998
gctggctctc atcgcccacc acaccgccgc ggacgcctgg gccatgcacg tcatcgcccg	38058
cgacctgctc aacctgtacg ccgccaggcg cgggaaccgc gttccccgc tccccgagcc	38118
ggcccagcat gccgagttcg cccgctggga gcgcgaggcg gccgaggcac cgcgggtcgc	38178
ggtctcgaag gaattctggc gcaagcgct ccagggcgcg cggatcatcg ggctggagac	38238
ggacataccg cgctcggcg ggctgccaa gggcaccgcg tggcagcgct tcgccgtacg	38298
cggggaactg gccgacgcc tgggtggagt ctcacgggc gccaaagtgt ccccgttcat	38358
gaccatgttc gccgcctacc aggtgctgct gcaccgcagg acgggcgagc tggacatcac	38418
cgtgccgacc ttctccgggg ggcgcaacaa ctcgcggttc gaggacaccg tcggttcctt	38478
catcaacttc ctgccgtgc gtaccgacct ctccggatgc gcatccttcc gcgaggtcgt	38538
gctgcgcacc cgcaccacct gcggagaggc gttcaccac gagctgccct tctcccggt	38598
gatcccgag gtgccggagc tgatggcgtc ggcggcctcc gacaaccacc agatctcgt	38658

E!  
Cont



cttccaggcc	gtgcacgcgc	ccgcgtccga	ggggcccag	caggccgggg	acctgacgta	38718
ctcgaagatc	tgggagcggc	agctgtcgca	ggcggagggc	tccgacatcc	ccgacggggt	38778
gctgtgggtc	atccacatcg	acccctcggg	ctccatggcc	ggcagcctcg	ggtacaacac	38838
caaccgcttc	aaggacgaga	cgatggcggc	cttcctggcc	gactacctcg	acgtgctcga	38898
gaacgcgggtg	gcccggccgg	acgccccctt	cacctcctga	gacagttccg	gcggcggcga	38958
acccgcccga	agaaaggaaa	gccagtgtcc	accgtttccg	acacagcggc	cggctcctcc	39018
ctggaggaga	aggtcaccgc	gatctggacg	ggtgttctcg	gcacgtccgg	tgaggaaggc	39078
gcgacgttca	tcgagctcgg	agggcagtcg	gtctcggccg	tgcgcacgcg	cacgcgtatc	39138
caggaggagc	tcgacatctg	ggtcgacatc	ggcgtcctct	tcgacgaccc	ggatctgcct	39198
accttcacgc	cggcgggtcg	ccggacggcc	gacgcgcggg	gcggcgaggg	ctccggaacg	39258
cagtgagact	cgccggggcg	cgtctccccg	cggcgcccgg	tttcacatgg	ctgaggcggt	39318
tcacccggtg	ccgggtgaac	cgcctcagcc	atgtgaaacc	gggcctggtc	agcgcagctg	39378
gatgtccgtc	tcccgggcga	tcgcccggag	gaactcgccg	cgggacagcg	cgtcggcgac	39438
cagctcgatg	tcgtcggcca	tgtaccggtc	gacgcccage	gtcggaaacca	gccggcgcac	39498
cgttctgtac	gtggccttcg	ccgcggggct	caagccgtcg	aaccggccgg	agatgtcgac	39558
cgcttgggcg	gcggccaggt	actccaccgc	gaggatcttg	ttgttggttcg	acaggaccgc	39618
gcgggcggtg	cgggcccaga	tcaggcccat	gtcaccacg	tcctgggtgt	cgccgttgga	39678
cgggacgctc	tgggtgctgg	cggggccgat	cgctccggttc	tcggccacca	gtgcggtggc	39738
cgggtactgg	gcgcgggcga	atccgctgtg	cagccccggg	tccccggaga	cgaggaactc	39798
cgggaggccg	tagctgaggt	gccgggttcag	gaccgggttg	atctgccgct	cggccaggac	39858
gccgagctgg	gtgagcgcga	tggtcacgaa	gtccatcgcg	aacgcgatcg	gctgaccgtg	39918
gaagttcgcc	ccgtggaaga	tctccttgcc	ctcgaagaag	agcgggttgt	cgttggccga	39978
gttgagctcg	atgcgcagct	tgtgccgcgc	gtggtacaag	gtgtcgcgca	ccgccccgac	40038
gacctggggg	atggcccgcga	gcgagtaggc	cttctgcagg	tagatctccg	agcgtgggac	40098
gtccttgccg	gcctccttgt	ccttctggag	ttctcggcgc	aggtcggcgt	gctcgaccgt	40158
cagtcgcgtg	ccccgcatca	gggcccgcac	gttgggcggc	gtgtcgatct	ggccctcgtg	40218
cgggcggggc	atgtcgtgcc	cctccgcgag	gaaggggctg	gtcgatccgc	gtaccgcctc	40278
gatgagcaga	gccgtcacga	tctcggcctg	ctgggcctgc	tccagggccc	gtccgacgac	40338
cagggagccc	agaccggtca	tcccggacgt	gccgttgatc	agtgcgaggc	cctccttgaa	40398

E  
CMT

gcgcagttcg agcggctcga tgcctcgctc ggccagcacc tgggcgggtct ccaccggccg 40458  
 tccgtcgcgc aggacgtagc cctctccgat gagggtgctc gcgacgtggg agaggggagc 40518  
 caggtcgccg ctcgccccga gtgacccgat ctcgggtatg gccgggggtga tgccctcggt 40578  
 caggtactgc gcgaggcggt cgaggatgat ggggcgcacc gcggagtggc ccttggcgag 40638  
 ggtgttcagc cgggcggcga cgatcgcccc cgccctcgtec tcggcgaaca gcggaccgac 40698  
 tcccgcgctg tggctacgga cgagattggt ctgcagttcg acttccttcg acttgctgac 40758  
 ctgcatgtag atcatctcgc cgtaccgggt ggtcaccocg tagatgggga tgttctgttc 40818  
 ggcgatccct tcgaagatct cccggctctt ctgggccttc gcgatggatt cggccgggtac 40878  
 gtcgaccgtc gcgcgttctt ccgcgacgcg gcgtacggct tcgacgggtca ggggtctcgcc 40938  
 gtcgacggaa accgggacga tctcggtctc gacttgagtc aatgccatca ctccatgggt 40998  
 agcggccgag gccgggtgtac gacaggtcag ggggtgggtt cgtgaggcgc ggctcagcgg 41058  
 gtgagccggg agcgggtccac cttccccgcg gcgttgccgc gcaggcgtga agtcaggcgg 41118  
 gtgaagacgg cgggcagtg caggggggccg aactggccgc gcagatggga acgccaggcc 41178  
 cggatgtccg cgcgcacgtc ctcccgccc tctccttggt gcaccacgta cacggcgagg 41238  
 cgggtcacca ggccctggcc gttgacgtgg gggaggaccg cgcactccag gaccgagggg 41298  
 tcacggttca gcgcggcctc gatctcggtg agttccaagc ggttcccgaa cagcttgacc 41358  
 tggaagtcct tgcggccccg gaattccagg gctccgtcga accgtaccg cgccagatcc 41418  
 ccggtccggt accaccggtc accgtccggg gcgaggccgg cgaggggccc gaacagcgcg 41478  
 ctgtggtccg ggccgcctc gacggcgaga taaccggcg tcacgtacgg ggagcggatc 41538  
 accagttcgc cgggtgacgc ggccggggctc ggccgggtcgt ccgcgtccac gacgagtacc 41598  
 tggcggcccg ggagcgggta cccgatcggg gccggggccc tgaccggccc ggtgatctcg 41658  
 tgccaggtcg cggcgatcgt ctcggtgggc ccgtagaggt tgatcaggcg ggtccggggc 41718  
 agggccgcgc gcagtcctgc cagagttcg ccgggcagcg cctcgcccat caggagcagg 41778  
 tggcccaggg tgccggggcc atcgcccggg tcggaggcgg tgatcactcc caggaggtcc 41838  
 cgggcgaagc tgggcacggt ctggagatga gtgatccgct cctggacgag ccacggcacc 41898  
 agcttgctcg ggttcaccct gacgcgtcc ggcaccggac acagcgtccc gccggccacg 41958  
 agcgtcgcga agacctcggc cagcgccggg tcgtgctccg gg 42000

<210> 2

<211> 216  
<212> PRT  
<213> Artificial

<220>  
<223> cDNA

<400> 2

Glu Asp Pro Gly Cys Gly Val Gly Val Thr Asp Glu Gly Gly Val Pro  
1 5 10 15

Gly Asp Ala Cys Gly Glu Gly Arg Phe Leu Glu Phe Glu Ala Gly Gly  
20 25 30

Glu Asp Asp Val Val Arg Val Glu Asp Leu Arg Val Gly Glu Arg Pro  
35 40 45

Arg Ala Gln Pro Leu Gly Gln Val Arg Gly Glu Ala Pro Asp Gly His  
50 55 60

Leu Glu Ala Ala Val Val Gly Pro Gly Val Glu Arg Leu Pro Val Arg  
65 70 75 80

Phe His Lys Asp Asp Ala Gly Thr Gly Leu Pro Cys Gly Leu Asp Gln  
85 90 95

Ser Gly Val Glu Val Val Leu Glu Asp Ala Ala Gly Gly Gly Ala Leu  
100 105 110

E!  
Cont Phe Gly Glu Leu Pro Arg Ser Pro Ala Pro Gly Pro Val Ala Pro Val  
115 120 125

Gly Leu Leu Val Gly Pro Val Asp Glu Val Glu His Val Leu Ala Glu  
130 135 140

His Arg His Pro Ala Gly Leu Asp Ile Glu Asp Val Val Pro Gly Val  
145 150 155 160

Ala Val Thr Val Ile Gly Asp Ala Gly Arg Ala Val Gly Gly Ala Pro  
165 170 175

Leu Gln Glu Asp Asp Phe Gln Arg Ser Ser Arg Glu Met Lys Gln Ala  
180 185 190

Tyr Arg Gly Arg Arg Ala Cys Gln Ala Arg Pro Tyr Asp Gln His Pro  
195 200 205

E  
cont

Gly Ala Arg Thr Arg His Ala His  
210 215

---